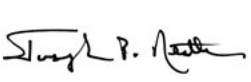

Rating manual
COMPASS

Summer 2017

Dear Ratings Team Members:

Thank you for participating in Compass. You are on the front lines of this program, which helps us effectively understand and describe the maintenance conditions of our highways. The quality of the underlying data—and our ability to use it to understand current conditions, improve consistency, and communicate with the legislature—is directly dependent upon the accuracy and consistency of your field ratings.

We appreciate the critical role you play in this effort. Please let us know what we can do to make the ratings process work better, and to make this program more useful to you.



Joe Nestler, Administrator
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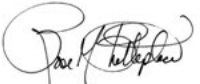
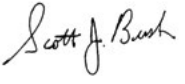
System Development



Rose Phetteplace,
Director, Bureau of
Highway Maintenance



Scott Bush, Manager
Compass Program

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Your Role

We need to measure the same things the same way.
To get high-quality data, it's important that all raters measure the same things the same way, whether from day to day, or from county to county. That's why every effort was made to make the standards clear and easily interpreted. Changing these measures in any way will only muddy the information you and your colleagues are putting so much work into gathering; please do everything you can to measure and record feature conditions in accordance with this manual. If you have any questions, please don't hesitate to contact Scott Bush, Compass Program Manager, at (608) 266-8666.

Please speak up.
We want to hear about what we can do in future years to make the data-gathering process easier, the standards clearer and the training more helpful. There is room for comments on your rating sheet and there will be opportunities for feedback during the ratings process and after it's completed. Please use these opportunities to help us improve the program—and feel free to call us with ideas, questions and suggestions at any time.

SHOULDERS

Typically, the shoulder consists of everything beyond the edgeline. If the driving surface material (flexible or rigid) extends for more than one foot beyond the edgeline, rate that as shoulder beginning at the edgeline.

If, however, the material that's on the traveled way only extends 12 inches or less beyond the edgeline, DO NOT rate that as shoulder. Begin with the different material.

There may be up to two shoulders—paved and unpaved—and you will rate them separately. So, for example, if a half-section of the roadway consists of 15 feet of flexible pavement and 3 feet of gravel, with the edgeline painted 12 feet from the centerline, we would consider the shoulder to be 6 feet wide. This shoulder would consist of 3 feet of flexible pavement (paved) and 3 feet of gravel (unpaved).

Identify if the paved shoulder was built with a safety edge.

Identify the typical width (in whole feet) and length (total linear feet) of paved shoulder on the rating sheet.

Check 'None' for paved shoulder only if there is no paved shoulder. Do not rate the three associated features.

Identify the typical width (in whole feet) and length (total linear feet) of unpaved shoulder on the rating sheet.

Check 'None' for unpaved shoulder only if there is no unpaved shoulder. Do not rate the three associated features.

Typical Shoulder Standards

Roadway Design Class	*Total Shoulder Width (paved and unpaved)*	*Paved Shoulder Width (resurface, restore, rehab)*	*Unpaved Shoulder Width (resurface, restore, rehab)*	*Paved Shoulder Width (reconstruct, new, replace)*	*Unpaved Shoulder Width (reconstruct, new, replace)*
A1	6'	3'	3'	Concrete: 3' Asphalt: 5'	3' 1'
A2	8' min, 10' desired	3'	5'-7'	Concrete: 3' Asphalt: 5'	5'-7' 3'-5'
A3 (4 lane)	Left: 4' min, 6' desired Right: 10'	Left: 3'-4' Right: 8'-10'	Left: 0'-3' Right: 0'-2'	Left: 3'-4' Right: 8'-10'	Left: 0'-3' Right: 0'-2'
A3 (6 lane)	Left: 10' Right: 10'	Left: 8'-10' Right: 8'-10'	Left: 0'-2' Right: 0'-2'	Left: 8'-10' Right: 8'-10'	Left: 0'-2' Right: 0'-2'
C1	2'-4'	If AADT>750: 3'			
C2	5' min, 6' desired	If AADT>750: 3'		If ADT>750: 3'-5'	
C3	6'	3'	3'	Concrete: 3' Asphalt: 5'	3' 1'
C4	8'	3'	5'	Concrete: 3' Asphalt: 5'	5' 3'
L1	2'-4'	If AADT>750: 3'			
L2	2'-4'	If AADT>750: 3'			
L3	5' min, 6' desired	If AADT>750: 3'		If ADT>750: 3'-5'	
L4	6'	3'	3'	Concrete: 3' Asphalt: 5'	3' 1'
L5	8'	3'	5'	Concrete: 3' Asphalt: 5'	5' 3'

Note: The matrix summarizes the standards – please refer to the WisDOT Facilities Development Manual for a complete listing of shoulder standards and exceptions. "Unpaved Shoulder Width" (for resurfacing, restoration and rehabilitation projects) is the difference between "Total Shoulder Width" (second column) and "Paved Shoulder Width" (third column). "Unpaved Shoulder Width" (for reconstruction, new construction, or pavement replacement projects) is the difference between "Total Shoulder Width" (second column) and "Paved Shoulder Width (fifth column).

Source: FDM 11-15, Attachments 1.1, 1.2 and 1.3 for total shoulder width standards (second column). FDM 11-15, Attachment 1.5 for paved shoulder width standards (third and fifth columns).

Definition: Foreign objects not designed to be on the road.

Standard: **Any objects on the shoulder large enough to pose a safety threat, including animal carcasses.**

Reporting measure: **- Number of objects.**

Methodology: Count and record the number of pieces of debris large enough to pose a safety threat. **Measure while on foot.**

Comments: Rate across both paved AND unpaved shoulders. Note that debris that doesn't cause a safety threat should be recorded under litter in the roadsides section, regardless of where it appears.

Notes:

Definition: Difference in height between paved surface and paved shoulder.

Standard: **Drop-off/build-up greater than 1.5 inches.**

Reporting measure: **- Linear feet of drop-off/ build-up.**

Methodology: Measure and record the linear feet of deficient drop-off/buildup. **Measure while on foot.**

Comments: The feature is typically located on concrete roadways that have asphalt shoulders.

Helpful tools include: ruler, level, and measuring wheel.

Notes:

Definition: A stress fracture in rigid or flexible pavement. Includes alligator cracking.

Standard: **All unsealed cracking greater than ¼ inch in width.**

Reporting measure: **- Linear feet of cracking.**

Methodology: Measure and record the linear feet of deficient cracking. Sealed cracks are not to be counted as a deficiency. If there are more than 150 feet of total cracking, including alligator cracking, on an undivided highway, or more than 300 feet on a divided road, record only 150 feet or 300 feet for undivided road and divided road, respectively. You do not need to record any length greater than these two values. **Measure while on foot.**

Comments:
Use for paved shoulders only. Helpful tools include: ruler and measuring wheel.

Definition: Raveling is the progressive downward disintegration of the surface by the dislodgment of aggregate particles. A pothole is an eruption of a bottom-up disintegration.

Standard: **One square foot or greater AND a depth of 1 inch or greater.**

Reporting measure: **- Square feet of potholes and raveling.**

Methodology: Sum and record the total square feet of potholes AND raveling which meet or exceed the standard. **Measure while on foot.**

Comments: If a pothole or raveling area is less than a square foot OR depth less than one inch, it is NOT to be measured.

Helpful tools include: ruler, measuring tape and calculator.

Use for paved shoulders only.

Notes:

Definition: Difference in height between paved surface and unpaved shoulder.

Standard: **Drop-off/build-up greater than 1.5 inches.**

Reporting measure: **- Linear feet of drop-off/ build-up.**

Methodology: Measure and record the linear feet of deficient drop-off/buildup. If there are more than 150 feet of deficient drop-off/build-up on an undivided highway, or more than 300 feet on a divided highway, record only 150 feet or 300 feet for undivided road or divided road, respectively. You do not need to record any length greater than these two values. **Measure while on foot.**

Comments: Helpful tools include: ruler, level, and measuring wheel.

Notes:

Definition: The ratio of distance across the unpaved shoulder to change in height over that distance, expressed as a percent (rise/run times 100).

Standard: **Cross slope > 2x the designed slope with the maximum designed cross slope of 8%.**

Reporting measure: **- Linear feet of deficiency. (measured parallel to the road.)**

Methodology: Measure and record the number of linear feet of deficient cross slope. (Measure from the edge of the pavement.) If there are more than 150 feet of deficient cross slope on an undivided highway, or more than 300 feet on a divided highway, record only 150 feet or 300 feet for undivided road or divided road, respectively. You do not need to record any length greater than these two values. **Measure while on foot.**

Comments:
The "typical" shoulder on a tangent section of roadway is designed with a 4% cross slope; therefore the standard for this typical section of roadway would be twice that or 8%.

On curved sections the maximum designed cross slope of the shoulders should not exceed 8%.

Helpful tools include: level, smart level and measuring wheel.

Helpful technique for tangent sections: Lay a 4' level on the edge of the pavement. Place a ruler perpendicular to the end of the level. If there is more than 4" on the ruler, the cross slope is greater than 8%.

Notes:

Definition: When a portion of the shoulder is worn away by the elements, e.g., snow melt, rain.

Standard: **Ruts greater than 2 inches deep.**

Reporting measure: **- Square feet of erosion.**

Methodology: Measure and record the square feet of shoulder where shoulder material has eroded to create a rut of greater than 2 inches. **Measure while on foot.**

Comments: Use for unpaved shoulders only. Rutting beside the paved surface that affects drop-off should be rated under Drop-off (unpaved). Helpful tools include: ruler and measuring wheel.

Notes:

Definition: Channels that are parallel to the roadway for the purpose of carrying runoff and that have an inslope and a back slope on the right-of-way.

Standard: **Greater than minimal erosion of ditch line**
OR
Obstructions to the flow of water requiring action.

Reporting measure:
- **Total linear feet of ditches.**
- **Linear feet of deficient ditches.**
- **Deficient ditches need "repair" or "clean" or both.**

Methodology: Measure and record the total linear feet of ditches. Measure and record the linear feet of deficient ditch. Ditches that simply have very little positive drainage and no obstructions require no action and therefore should not be included in your count. **Measure while on foot.**

Comments:
Private entrance culverts should be evaluated while rating this element. They may be the obstruction requiring action. Helpful tools include: measuring wheel.

Notes:

Definition:

A conduit or pipe under a roadway or embankment to maintain flow from a natural waterway or drainage ditch. This may also include cattle passes and other animal crossings.

Standard:

A culvert that is
> 25% obstructed
OR
Where a sharp object — e.g., a shovel — can be pushed through the bottom of the pipe
OR
Pipe is collapsed or separated.

Reporting measure:

- **Total number of culverts.**
- **Number of deficient culverts.**
- **Deficient culverts need "repair" or "clean" or both.**
- **Size of deficient culvert**
- **Type of deficient culvert (concrete, steel, lined, unknown).**

Methodology:

Count and record the total number of culverts in the segment. Count and record the number of deficient culverts. **Measure while on foot.**

Comments:

Do not enter culvert!

Do not rate private entrance culverts under this feature. However, if they are obstructed and require action, they should be rated under "Ditches."

Helpful tools include: a flashlight and shovel.

Do not count driveway pipes, town, or county road pipes—just pipes under state roads.

Definition: Under drains or edge drains are small pipes constructed in the subgrade to drain subsurface water.

Standard: **Outlets, endwalls or end protection are closed or crushed**
OR
Water flow or end protection is obstructed.

Reporting measure:
- **Total number of drains.**
- **Number of deficient drains.**
- **Deficient drains need "repair" or "clean" or both.**

Methodology: Count and record the total number of under or edge drains in the segment. Count and record the number of deficient under or edge drains. **Measure while on foot.**

Comments:
Edge and under drains are often difficult to locate if they have not previously been marked.

Check "None":
Only when there are no edge drains or under drains present.

Notes:

Definition: Paved channels used to direct runoff water away from the road surface to a ditch or out drain.

Standard: **Not functioning as intended**
OR
Deteriorated to the point that it is causing erosion.

Reporting measure:
- **Total number of flumes.**
- **Number of deficient flumes.**
- **Deficient flumes need "repair" or "clean" or both.**

Methodology: Count and record the total number of flumes in the rating area. Count and record the number of deficient flumes. **Measure while on foot.**

Check "None": Only when there are no flumes present.

Comments:
Rate concrete, asphalt and rip rap (rock) flumes.

Notes:

Definition: Both mountable and standard curb and gutter

Standard: **Severe structural distress OR More than 1 inch of structural misalignment OR More than 1 inch of debris build-up in the curb line.**

Reporting measure:
- **Total linear feet of curb & gutter.**
- **Linear feet of deficient curb & gutter.**
- **Deficient curb & gutter need "repair" or "clean" or both.**

Methodology: Calculate and record the total linear feet of curb and gutter in the segment. Calculate and record the linear feet of deficient curb and gutter. **Measure while on foot.**

Comments: Helpful tools include: measuring wheel and measuring stick.

Check "None": Only when there is no curb and gutter present.

Notes:

Definition:

Inlets, catch basins, and outlet pipes are used to carry surface water and runoff from inlets and catch basins to natural waterways. Includes pipes under the road with a catch basin in the median.

Standard:

For any catch basin, inlet or outlet, > = 50% of capacity obstructed
OR
< 80% structurally sound (including covers and grates)
OR
> 1 inch of vertical displacement or heaving.
OR
Not functioning as intended.

Reporting measure:

- **Total number of inlets, catch basins, and outlet pipes.**
- **Number of deficient inlets, catch basins and outlet pipes.**
- **Deficient storm sewer need "repair" or "clean" or both.**

Methodology:

Count and record the total number of inlets, catch basins and outlet pipes in the segment. Count and record the number of deficient inlets, catch basins and outlet pipes. **Measure while on foot.**

Comments:

Inspect the insides of the catch basins and the outlet pipes for structural defects. **Do not enter storm sewer.**

Helpful tools include: measuring tape and shovel.

Check "None":

Only when there are no inlets, catch basins or outlet pipes present.

Notes:

Definition: Any objects that shouldn't be there, including illegal signs. This includes litter on the shoulder that is not a safety threat. It also includes dead animals on the roadside.

Standard: **Visible at posted speed.**

Reporting measure:
- **Number of instances (up to 15) of litter.**

Methodology: Drive the segment at the posted speed. Count and record the number of pieces of litter and other objects (e.g., unauthorized signs, cars, etc.).

Comments:
"Visible at posted speed" is used as the standard to accurately reflect the experience of drivers. **So something that you can see walking, but not driving, should not be counted.**

Notes:

Definition:
Mowed grass
OR
grass blocking a vision triangle or sightlines

Standard:
Cut grass:
With height > 12"
or height < 6"
OR
Width >15' on outside
or past the bottom of ditch
OR
width > 5' on inside
or more than one pass
with a single unit mower
OR
In a marked no-mow zone
OR
Grass blocking a vision triangle or sightline.

Reporting measure:
Urban mowing section.
Mowing meets standard.
If no, check all that apply:
- **Too wide**
- **Too tall**
- **Too short**
- **In a no mow zone**

If no, check all that apply:
- **Safety/equipment**
- **Mowed by property owner**
- **Woody vegetation control**
- **Maintenance decision**

Presence of a blocked vision triangle or sight
- **lines (yes/no)**

Methodology:
Check "yes" if mowing meets standard; "no" if it doesn't. Check any deficiencies. Under "mowing vision," check "yes" if any of the vision triangles or sightlines are blocked by grass or weeds. You may need to pull up to intersections from all streets to check this. Don't worry about small clumps of grass that are too tall.

Comments:
Helpful tools: ruler and measuring wheel

Check none:
Only when there are no vision triangles or sightlines present.

Definition: Trees and shrubs

Standard: Tree branches or trees overhanging or leaning over the roadway that create a clearance problem
OR
Trees > 4" in diameter in the clear zone.
OR
Woody vegetation blocking a vision triangle, a motorist's view of the highway, or traffic signs.

Reporting measure:
- Number of instances of trees in clear zone and trees overhanging or leaning over the roadway that create a clearance problem.
- Presence of woody vegetation blocking a vision triangle, a motorist's view of the highway, or traffic signs (yes/no).

Methodology:
Count and record the number of instances of deficient woody vegetation. Check "yes" if any of the vision triangles, traffic signs or views of the highway as a motorist are blocked by woody vegetation; "no" if they're not. You may need to pull up to intersections from all streets to check the vision triangles.

Comments:
The lowest bridge height for the piece of highway is the logical reference to determine whether an overhanging or leaning branch creates a clearance problem.

Clear Zone Widths

Design Class	At Grade or Cut Sections	Fill Sections
No Design Class (22' pavement and less than 6' shoulders)	**15'**	**15'**
A1 (22' pavement and 8' shoulders)	**25'**	**30'**
A2 (24' pavement and 8' shoulders)	**30'**	**35'**
A3 (24' pavement and 6' inside/10') outside shoulders	**35'**	**45'**
A4 & 5 (26–40' pavement. Curb, gutter and no sidewalk)	**8'**	**8'**
A4 & 5 (26–40' pavement. Curb, gutter and sidewalk) (beyond sidewalk)	**6'**	**8'**

Source: State Highway Maintenance Manual, Policy 74.40

Definition: Right-of-way fences.

Standard: **Missing OR Not functioning as intended.**

Reporting measure:
- **Fence type: urban (chain link) or rural (woven)**
- **Total linear feet of fence**
- **Linear feet of deficient fence**

Methodology: Calculate and record the total linear feet of fence and the linear feet of deficient fence. **Measure while on foot.**

Comments: Do not assess private fences, just right of way fences. Helpful tools include: measuring wheel or electronic DMI.

Check "None": Only when there are no fences present.

Notes:

Definition:

Centerline - Yellow lines, solid or dashed, dividing opposing travel directions on roads. Also includes white dashed lines on multi-lane roads used to divide lanes traveling in the same direction.
Edgeline - White solid lines used to indicate the edge of the traveled roadway. On multi-lane roadways, yellow solid line on left of traveled roadway is included.

Standard:

> 20% total material missing.

Reporting measure:

Absence of > 20% of total material (yes/no)

Methodology:

Walk segment to determine whether > 20% of the total centerline material is missing. Repeat for edgeline.

Comments:

Roads with curb and gutter may not have edgeline. Roads without curb and gutter should have edgeline. A road without curb and gutter AND without edgeline on either side would have deficient edgeline.

Check "None":

For edgeline, only if curb and gutter is present and there is no edgeline.

Definition: Markings maintained by WisDOT. These are: 8" turn lane lines, stop bars, white 8" gores, all arrows (except those in bike lanes), the word message "ONLY," short skips for acceleration/ deceleration lanes, yellow curbs for opposing traffic, 8" channelizing lines and painted raised medians.

Standard: **Missing**
OR
Not functioning as intended.

Reporting measure:
- **Total number of markings**
- **Number of deficient markings**

Methodology: Count and record the total number of special pavement markings. Count and record the number deficient.
Measure while on foot.

Comments:
An arrow, a word, or a stop bar is considered an individual marking. Consider diagonal line groupings as one unit; connecting 8" channelizing lines as one unit.

Check "None":
Only when no special pavement markings are present.

Definition: Regulatory signs are signs with an enforceable message, such as speed limits, yield, stop or no parking. Warning signs are black lettering on yellow, with a message indicating a potential hazard ahead. For example: School Bus Stop Ahead, Curve, tiger strips on beam guard ends,etc.

Standard: **Missing OR Damaged.**

Reporting measure:
- **Total number of regulatory/ warning signs that rater has specific knowledge should be present.**
- **Number of regulatory/ warning signs deficient.**

Methodology: Count and record the total number of individual (i.e. separately mounted) regulatory/warning signs that should be present and the number of deficient regulatory/warning signs.

Counting should be done while on foot.

Comments:
Don't record signs as deficient if they are not visible due to vegetation; these will be recorded under Woody Vegetation Control for Vision.
Do not consider a sign missing unless you see the downed sign, or you have specific knowledge that a sign is missing. Flashing beacons are not included.

Helpful tool:
MUTCD manual

Check "None":
Only when no regulatory or warning signs are present.

Definition: Informational and directional signs. These include highway number signs, route markers, mileage to and direction to destination signs (green signs).

Standard: **Missing OR Damaged.**

Reporting measure:
- **Total number of signs.**
- **Number of signs deficient.**

Methodology: Count and record the total number of individual (i.e. separately mounted) signs and the number of deficient signs. **Counting should be done while on foot.**

Comments: For this survey, no orange construction signs should be included. Also, don't record signs as deficient if they are not visible due to vegetation; these will be recorded under Woody Vegetation Control for Vision.

Helpful tool:
MUTCD manual.

Check "None":
Only when no informational or directional signs are present.

Notes:

Definition: Reflective markers, usually on steel posts or roadside barriers, placed adjacent to the roadway at a uniform spacing.

Standard: **Missing**
OR
Damaged.

Reporting measure:
- **Total number of delineators that should be present.**
- **Number of deficient delineators.**

Methodology: Count and record total number of delineators that should be present and number of deficient delineators.

A mirror can be used to direct sunlight at the delineator, in order to determine reflectivity.

Comments:
Two buttons on one post count as one delineator. Delineators are typically spaced every 100' on cable guard. Refer to the table below for general delineator spacing standards on beam guard and concrete barrier.

Check "None":
Only when no delineators should be present.

Notes:

	Length of barrier	Reflector spacing	# of surfaces reflectorized	Minimum # of reflectors
One-way traffic	< 200' > 200'	50' c-c 100' c-c	1 1	3
Two-way traffic	< 200' > 200'	25' c-c 50' c-c	1 1	6
Two-way traffic	< 200' > 200'	50' c-c 100' c-c	2 2	3

Definition: Protective barrier to keep traffic away from dangerous areas, such as water and drop-offs. Includes beam guard, concrete barrier walls and cable guard.

Standard: **Not functioning as intended.**

Reporting measure:
- **Total linear feet of protective barrier.**
- **Linear feet deficient.**
- **Type of deficient protective barrier**
- **Deficient energy absorbing terminal on beam guard, if applicable**
- **Needs herbicide**

Methodology: Measure and record the total linear feet of protective barrier, and the linear feet of deficient protective barrier. Measure from top of face of barrier to ground. **Measure while on foot.**

Comments: Proper height of beam guard is 28". The range of appropriate heights is 25" to 30". For Midwest Guardrail System (MGS) beam guard: Proper height is 31" and the range of appropriate heights is 28" to 34".

Other Deficiencies – Beam Guard:
- Beam deformed >6"
- Missing bolts
- Cracked or broken blocks
- Cracked or broken posts
- Surface build-up >1 ½"
- Needs herbicide or mowing

Concrete Barrier:
- Severe cracking or crumbling
- Broken sections or attachments
- Misaligned >6"

Cable Guard:
- Slack cable
- Damaged attachments
- Needs herbicide or mowing

Helpful tools include:
- Measuring wheel and measuring tape.

Check "None":
Only when no protective barriers are present.

Segment Boundaries

When your segment goes through an intersection or has a ramp leading onto or off of it, modify your rating as follows:

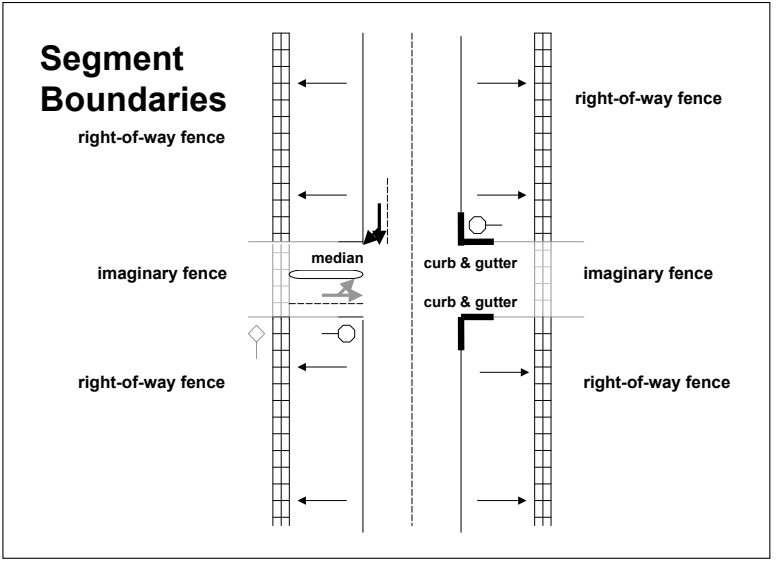
Shoulders: Rate only the shoulders on the segment road.

Drainage: Imagine that the right-of-way fence continues in a parallel line across the intersection or ramp. Rate those features within that "fenced" area that WisDOT is responsible for maintaining, including WisDOT-maintained culverts or storm sewer system features running under the ramp or intersection. For curb and gutter and other "on-pavement" features, follow the radius around the corner and stop at the end of the radius. On ramp islands that abut the segment, rate curb and gutter all the way around the island, as well as storm sewer system features associated with the island.

Roadsides: Again, imagine that the right-of-way fence continues in a parallel line across the intersection or ramp. Rate those features within that "fenced" area that WisDOT is responsible for maintaining.

Traffic: At intersecting roads, rate the traffic features that WisDOT is responsible for maintaining and control access to and from the segment. These typically include curb markings, stop bars and stop signs.

Segment Boundaries



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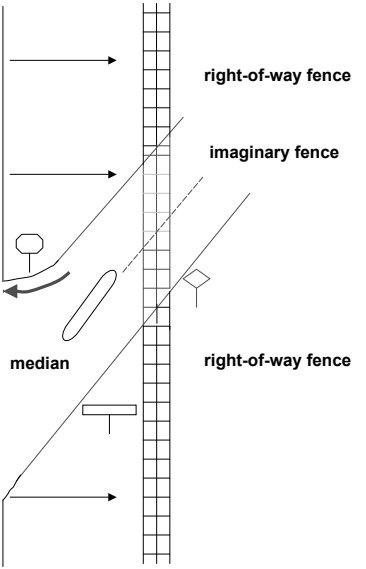


How to rate the roads

Planning your rating trips

You will receive three types of information from us for any one rating cycle:

1) Rating sheets for segments in your county, each 1/10 of a mile. These segments have been randomly selected by a computer, which pulled them from a pool that included all of the 1/10-mile segments in your county. Each rating sheet will include a segment number and information on how to locate that segment. You may want to make one or two additional copies of each of these, one for each rater, so that you have one per rater.
2) A map of your county's roads, showing the starting point for each segment. The map is provided to help you understand where the segments are in relation to each other and to plan your route accordingly.
3) Your map will include information on how many segments you will need to rate in your county. Two sets of additional segments are provided only in case some of your initial segments are thrown out (see below) and should not be used otherwise. These "spare" segments will have a differently shaped marker than the regular segments on your map.

You can visit segments in any order you choose. Plan on completing all aspects of each segment rating during one visit, but it is not important that you rate all segments on the same day.

A note on safety

It is expected that the rating teams—made up of patrol superintendents and maintenance coordinators—will be familiar with and follow appropriate safety procedures at all times during this process.

When to rate

All ratings must be completed between August 15 and October 15.

Recommended equipment list

- clipboard, pencils and erasers
- rating manual
- rating sheets x2 or x3 (one for each team member)
- maps of segments to be sampled
- measuring wheel or tape
- mirror
- shovel
- (smart) level
- MUTCD manual

- flashlight
- small measuring ruler (6")
- electronic DMI
- white spray paint (for marking the segments)
- appropriate safety apparel and other equipment for the given segments

Finding the segments

Each rating sheet will include:

a. Two nearby landmarks (likely intersections or bridges);
b. The direction you need to drive from that landmark; and
c. The distance you need to drive in that direction.

You will need to go to one of those landmarks, and drive in the listed direction for the listed distance. It is fine to use your odometer to determine the starting point—it will not affect the sample's randomness. But you should use a DMI or measuring wheel from the segment starting point to ensure the segment is 528 feet long.

Throwing out a segment

A segment should not be rated if and only if any of the following criteria are met:

1. Any piece of the segment is under construction.
2. Any piece of the segment includes a bridge.
3. You cannot locate the segment.

4. You believe it would be unsafe to rate the segment.
5. An organization other than WisDOT is responsible for any of the 4 elements within the section.

Do NOT throw out a segment because it seems unusually good or unusually bad or atypical in any way. It is important to include even these samples in order to get a statistically valid estimate of the average condition of our roads.

If you do throw out a segment, you should replace that segment with the next highest numbered segment that is the same type of road — divided or undivided highway — as the segment you are throwing out. For example, you have 20 segments to rate and you throw out one segment, which is on a divided highway. You have been provided with 15 spare segments (#21– #35) on undivided highways and 15 spare segments (#36 – #50) on divided highways. You should replace the thrown out segment with segment #36, the next highest numbered spare segment that is located on a divided highway.

If you throw out a segment, you also need to mark that you have done so on the rating sheet for that segment (the last box in the top series of boxes) and enter the rejection reason in the Compass database for that segment.

Rating the segment

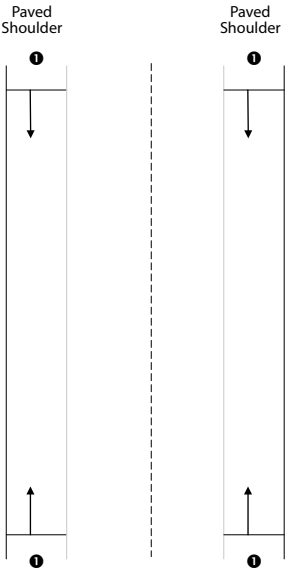
OK, so you've found your segment, determined that it can be rated, and now you're ready to go. You will be rating both sides of the road, regardless of whether the road is divided or undivided. If the highway is divided, do your best to select the 1/10 of a mile in the opposite direction that is directly across from the 1/10 of a mile listed on your sheet.

1. Take your *white* spray paint and mark the beginning and end of the 1/10-mile segment as soon as you arrive. (Mark it on both sides of the road.) Spray paint a line on the shoulder perpendicular to the road. Then paint an arrow from this base line pointing into the segment. Paint the segment number near the line and circle it. Do this for all ends of the segment. The rating sheet tells you where the beginning of the segment is. You will need to drive for 1/10th of a mile from that point to find the end. Use a DMI, if you have one. If not, use your measuring wheel.
2. Fill in the information on the top of the rating sheet, including: *date, start time*, and *reviewer(s).* A few boxes will be blank, including: *stop time*, and *if segment needs to be discarded.*
3. You should first drive the segment. Have your non-driving partner fill out the sheet as you go. Those features that must be measured while driving at the posted speed have a car symbol next to the feature name on the Rating Sheet. You may also rate these features while walking, from the point of view of someone driving the posted speed.

4. Once you have completed the features that are to be measured while driving at the posted speed, walk the segment, filling out the sheet as you go.
5. Each feature has its own page in the manual and its own box(es) on the rating sheet; use the manual to determine how to rate each feature.
6. You do not need to fill the sheet out in any particular order, but should rate the features in the order that is easiest for you.
7. Please do not discuss your ratings with your partner until you have both finished rating that feature. You may, of course, discuss what you're looking for and how to perform a rating, but do not compare actual ratings until you're done. This helps ensure consistent ratings and valid data.
8. For features that are not present (e.g., there are no culverts in this 1/10-mile segment), check the box labeled "None."
9. When you are both done rating, compare your ratings and discuss how you arrived at them. For any feature on which you disagree, review the standard and the feature, measuring again if necessary, and determine a rating together.
10. Check to ensure all boxes where "None" was not checked have a rating. For paved and unpaved shoulders, if you check "None," you do not need to fill out the feature boxes below.
11. Note the "stop time".
12. Enter the segment ratings into the Compass database.
13. Have rating data for all segments entered into the Compass database by October 15.

How to mark a Segment

- Spray paint a *white* line on the paved shoulder perpendicular to the road.
- Paint an arrow from this base line pointing into the segment.
- Paint the segment number near the line and circle it.
- Mark the segment on all ends, and for divided highways mark the segment on all sides of the median.



Glossary

Feature Sometimes a deficiency (e.g., cracking) and sometimes a physical asset (e.g., signs); something we look at to see how the highway is holding up. Selected because it is important to drivers and/or to the preservation of our investment in the state highway system.

Element A group of features that best describes how a motorist or maintenance worker might divide up the highway from fence to fence. For example, shoulders, drainage.

Standard How we decide if we're going to count a feature as deficient for this program. For example, litter is only counted as deficient when it is visible from a car going the speed limit. These are quantitative whenever possible, but may rely on the expert judgment of the rater to assess whether the asset is "functioning as intended." For example, culverts > 25% obstructed; litter visible at highway speed.

Reporting measure How we measure feature condition. This tells us the extent of the problem. Again, these are quantitative whenever possible. This is the number that is actually written down on the rating sheet. For example, number of culverts; linear feet of shoulder drop-off.

For more information on this program, please contact:

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Program Website

http://wisconsindot.gov/Pages/doing-bus/local-gov/hwy-mnt/compass/default.aspx